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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/929,831	08/14/2001	Francois Andre Germain Eudes	68-00A	9909
23713	7590	02/08/2005	EXAMINER	
GREENLEE WINNER AND SULLIVAN P C			HWU, JUNE	
4875 PEARL EAST CIRCLE			ART UNIT	
SUITE 200			PAPER NUMBER	
BOULDER, CO 80301			1661	

DATE MAILED: 02/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/929,831	EUDES ET AL.	
	Examiner	Art Unit	
	June Hwu	1661	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 107-125, 127-153, 155-178 and 180-190 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 107-125, 127-153, 155-178 and 180-190 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

1. The amendment filed November 23, 2004 has been acknowledged.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in the prior Office action.

Listing of Claims

3. Claims 1-106, 126, 154, 179 and 191-207 have been cancelled. Claims 107-125, 127-153, 155-178, and 180-190 will be examined.

35 USC § 112

4. The rejection of claims 124, 125, 152, 153 and 177 under 35 USC 112, second paragraph is withdrawn in view of Applicants' amendment filed August 13, 2004.

Response to Arguments and Claim Rejections

35 USC § 102

5. Applicants' arguments, see page 22, filed August 13, 2004, with respect to the rejection(s) of claim(s) 107 under 35 USC 102(a) and (b) have been fully considered and are persuasive because Bohanec et al taught a method of inducing direct organogenesis in *Allium* through flowers or ovaries and not immature scutella cells. Therefore, the rejection has been withdrawn.
6. Applicants' arguments, see page 22, filed August 13, 2004, with respect to the rejection(s) of claim(s) 107 under 35 USC 102(b) have been fully considered and are persuasive because Denchev et al taught a method of transforming *Dactylis* using leaf tissue and not

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immature scutella cell of the *Panicoideae* or *Pooideae* plants. Therefore, the rejection has been withdrawn.

7. Claim 107 is rejected under 35 U.S.C. 102(b) as being clearly anticipated by Dunstan et al (1978). Dunstan et al (Protoplasma 97, 1978) discloses that cells of the scutellum of immature *Sorghum bicolor* (*Panicoideae*) were grown on MS (Murashige and Skoog) agar medium containing 2,4-D (page 252). The explants proliferated into embryo-like structures characterized by structures with a "median groove" and compact white nodular tissue (page 254). Eventually the explants developed into plantlets by separation of the explants, and then transferring the explants without 2,4-D (page 256).

8. Claim 107 is rejected under 35 U.S.C. 102(b) as being clearly anticipated by Dunstan et al (Protoplasma 101, 1979). Dunstan et al (1979) disclose that plantlets of *Sorghum bicolor* were formed from cultured scutellum cells without callus stage (Summary and page 360).

9. Claim 107 is rejected under 35 U.S.C. 102(b) as being clearly anticipated by Dale. Dale discloses that plantlets were produced from scutellum and shoot primordia of *Lolium multiflorum* (*Pooideae*). The basal culture medium used was MS supplemented with 2, 4-D (2,4-dichlorophenoxy acetic acid) and BAP (6-benzylaminopurine) (page 74). For plant regeneration the embryoids were cultured in MS and B5 basal media (page 75).

35 USC § 103

10. Applicants' arguments, see pages 23-28 filed August 13, 2004, with respect to the rejection(s) of claim(s) 107-125, 127-153, 155-178 and 180-190 under 35 USC 103(a) have

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been fully considered and are persuasive. Denchev et al, Jong et al, Sankhla et al and Sudharsan et al do not use scutella cells for direct embryogenesis. Mariani et al do use the subfamilies of *Panicoideae* and *Pooideae*. Therefore, the rejection has been withdrawn.

11. Claims 107-125, 127-153, 155-178 and 180-190 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dale in view of Mantell et al, Sargent et al and Nehra et al (U.S. Patent No. 5,589,617). Dale teaches a method of regenerating plants from scutella cells. Dale further teaches that the best culture initiation medium for *Lolium* is the medium with 2 mg/l, 2,4-D and 0.2 mg/l BAP for the regeneration of plants (Summary and page 76). Dale also discloses three types of tissue proliferation root, shoot and scutellar. The scutellar proliferation formed nodules on the surface, which were embryo like. These embryo-like structures were transferred to a basal MS and basal B5 for plant regeneration (page 75).

Dale does not teach culturing the scutella cells in medium containing different concentration of auxin, cytokinin and polyamine. Dale also does not teach the introduction of foreign DNA to the scutella cells or primary embryo.

Mantell et al disclose that it is well known in the art to experiment with varying degrees of growth regulators, etc. to optimize the performance of organogenesis or embryogenesis cultures of different plant species (pages 142).

Sargent et al disclose that sorghum line TAM422 and all three sugarcane cultivars (Q117, H56752, and Q96) increase in somatic embryogenesis with the addition of polyamine to the culture media (page 454). Plant regeneration in sorghum and sugarcane all benefited from the addition of putrescine, spermidine or spermine.

Nehra et al have shown that foreign DNA of cereals can be transformed into scutella cells of wheat and barley by particle bombardment (column 3, lines 33-37 and Figs. 1A and 1B).

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this method can also be advantageous for Gramineae crop species such as corn, rice, oats, sorghum, millets and grasses (column 3, lines 39-45).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the culture medium of Dale by supplementing with polyamine as taught by Sargent et al, and introducing the scutella tissues with foreign DNA as taught by Nehra et al. There would have been a reasonable expectation of success given that Sargent et al concluded that the application of polyamine to sorghum and sugarcane provided a stimulus for somatic embryogenesis and increase plant regeneration (page 455). One of ordinary skill in the art would have been motivated to introduce foreign DNA to the scutella as shown by Nehra et al because it would significantly improve the plant to certain herbicides, pest and diseases and new trait (column 1, lines 44-50). The references do not specifically teach adding growth hormones in the amounts claimed by Applicants. The amount of specific growth hormones in the medium is clearly a result effective parameter that a person of ordinary skill in the art would routinely optimize. Optimization of parameters is a routine practice that would be obvious for a person of ordinary skill in the art to employ. It would have been customary for an artisan of ordinary skill to determine the optimal amount of plant hormones to add in order to best achieve the desired results. Thus, absent some demonstration of unexpected results from the claimed parameters, this optimization of plant hormones amount would have been obvious at the time of Applicants' invention.

Therefore, it would have been obvious to one of ordinary skill in the art to modify the method of Dale by optimizing the growth regulator concentration as shown by Mantell et al and Sargent et al to induce direct somatic embryogenesis in *Panicoideae* and *Pooideae*, introducing foreign DNA as taught by Nehra et al, and finally regenerating the embryos into plantlets. Thus,

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the invention as a whole was clearly *prima facie* obvious to one of ordinary skill in the art at the time the invention was made, if not anticipated by, the prior art.

Conclusion

12. No claims are allowed.

13. Applicants' amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicants are reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Future Correspondence


Any inquiry concerning this communication or earlier communications from the examiner should be directed to June Hwu whose telephone number is (571) 272-0977. The Examiner can normally be reached Monday through Thursday from 6:30 a.m. to 5:00 p.m.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Andrew Wang, can be reached on (571) 272-0811. The fax number for the organization where this application or proceeding is assigned is (571) 273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JH



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